Comprehensive Plan for Disaster Clean-up and Debris Management

Louisiana Department of Environmental Quality
Revised July 1, 2009

Purpose

The purpose of the Comprehensive Plan for Disaster Clean-up and Debris Management is to establish a framework to facilitate the proper management of debris generated by natural disasters within the state (R.S 30:2413.1). The goal is to facilitate a reasonable, efficient, and prompt recovery from such disasters and be protective of human health and the environment. The plan includes flexible and innovative approaches to address disaster-generated debris issues. It adheres to the Louisiana Department of Environmental Quality's mission of protecting human health and the environment to the fullest extent possible under the circumstances. The plan allows LDEQ the flexibility to consider, approve, or disapprove reasonable requests for authorizations, variances, and waivers as needed for rapid and environmentally sound waste management, recycling, and disposal. A primary objective of the plan is to conserve landfill capacity and to protect natural resources to the maximum extent practicable.

Pursuant to the laws of the state of Louisiana, the Secretary of the LDEQ is granted the authority to declare an emergency upon receipt of evidence of an incident that requires immediate action to prevent irreparable damage to the environment and serious threats to life or safety. Upon declaring that an emergency exists, the Secretary may issue such permits, variances or other orders as necessary to respond to the emergency, and such orders are effective immediately. With the declaration of an emergency, the Secretary issues an administrative order, which provides specific measures authorized within the timeframe of the emergency. Those specific measures contained in the emergency order serve as relief for the duration of the order from the regulatory and proprietary requirements of the LDEQ. However, the measures do not provide relief from the requirements of other federal, state, and local agencies.

Thus, the regulatory flexibility to manage disaster-generated debris in the manner set forth in this plan is authorized upon issuance of an Emergency Declaration and Administrative Order by the LDEQ Secretary. The Emergency Declaration and Administrative Order will require adherence to the "Comprehensive Plan for Disaster Clean-up and Debris Management," except where the Plan may be in conflict with the provisions of the Order. In the event of conflict, the Order shall prevail. Moreover, while this plan is consistent with state and federal law, it does not supersede any ordinance adopted by a local governing authority.

This Comprehensive Plan for Disaster Clean-up and Debris Management documents some of the lessons learned from prior disasters and extends beyond those lessons to formulate a plan that manages future disasters in a cohesive, organized, and efficient manner, while ensuring protection of public health and the environment.

The LDEQ prepared a Hurricane Katrina Debris Management Plan that was released on September 28, 2005, and revised on October 14, 2005. Additionally during the 2006 Regular Session of the Louisiana Legislature, Senate Bill 583 (Act 662) was enacted as LA R.S. 30:2413.1. LA R.S. 30:2413.1 directs the LDEQ to develop and implement a comprehensive debris management plan for debris generated by natural disasters. The bill states the goal of the

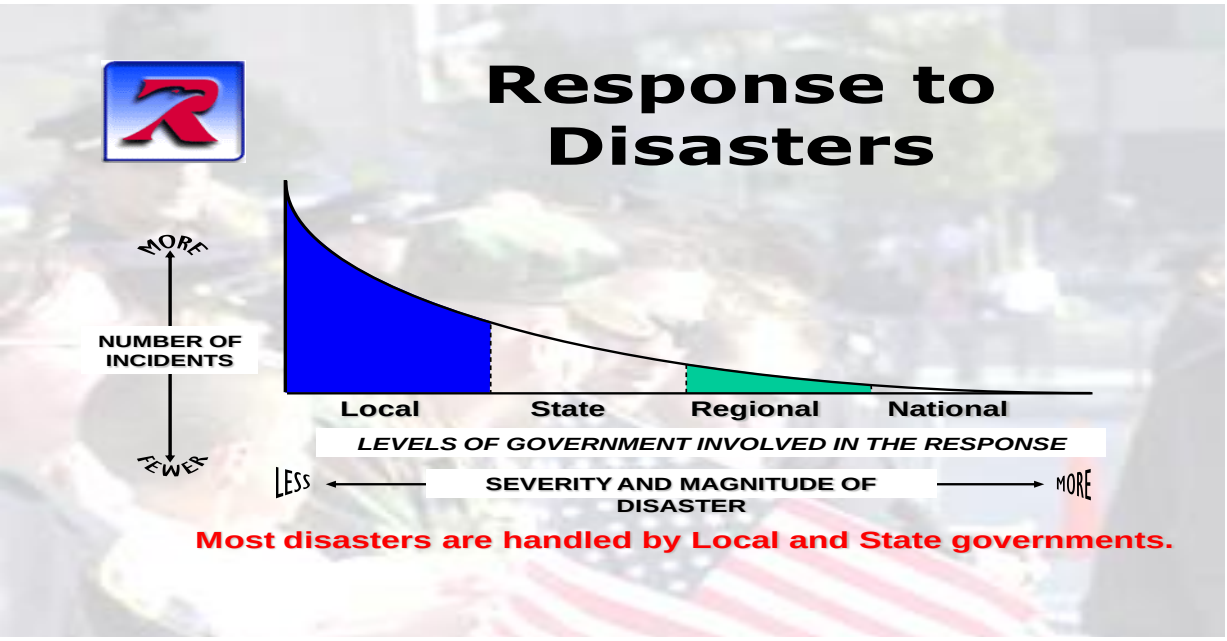
comprehensive debris management plan is to "reuse and recycle material, including the removal of aluminum from debris, in an environmentally beneficial manner and to divert debris from disposal in landfills to the maximum extent practical and efficient which is protective of human health and the environment." Among other things, SB 583 dictates the use of the following debris management practices, in order of priority, to the extent they are "appropriate, practical, efficient, timely and have available funding: recycling and composting; weight reduction; volume reduction; incineration or co-generation; and land disposal." The plan is limited by and may not extend beyond the limitations impose by the Secretary's Emergency Declaration and Administrative Order.

This plan builds upon LDEQ's existing plan and is intended to be a living document. As such, it will be amended, as necessary, to address specific challenges as they arise.

1.0 Background

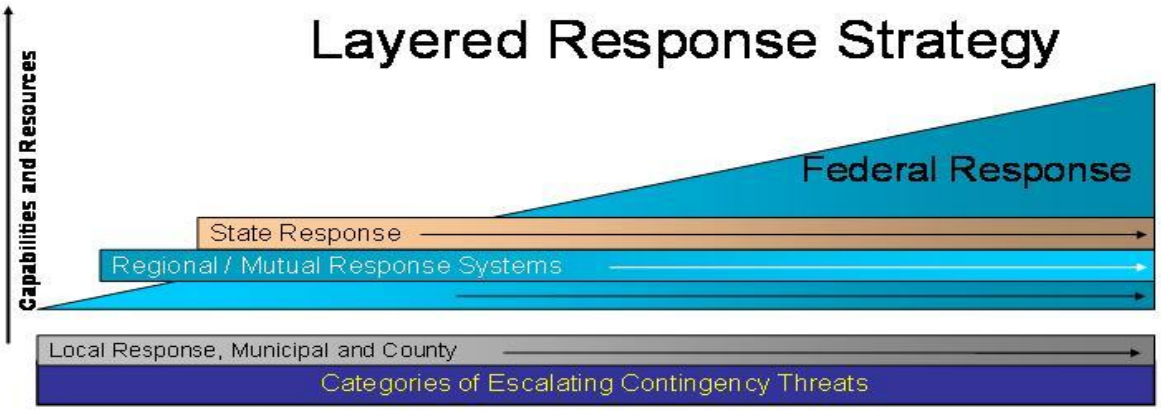
Local governments are the lead responders for incidents and most incidents are handled locally (ex. fires, etc.). Some incidents (such as chemical transportations spills) escalate in complexity and are handled by a combination of state and local resources.

1.1 Response to Disasters



FEMA assistance is triggered by the Governor's Declaration of an Emergency and a request for federal assistance. The Governor's request is made to the FEMA Regional office in Denton, Texas. Representatives from the Governor's Office of Homeland and Emergency Preparedness (GOHSEP) and FEMA conduct a preliminary damage assessment (PDA) to estimate the extent of the disaster and its impact on individuals and public facilities. This information is included in the Governor's request to show that the disaster is of such severity and magnitude that effective response is beyond the capabilities of the State and the local governments and that Federal assistance is necessary. Local response to save lives and initiate recovery takes place immediately and automatically while the external responses are mobilizing.

Disasters of less severity and magnitude are triggered by the Governor's Declaration of an Emergency minus the request for federal assistance. Representatives from the Governor's Office of Homeland and Emergency Preparedness (GOHSEP) will immediately conduct a preliminary damage assessment (PDA) to estimate the extent of the disaster and its impact on individuals and public facilities. Local response to save lives and initiate recovery takes place immediately and automatically while the external responses are mobilizing. Tools for estimating the amount of debris generated are available at: http://www.deq.louisiana.gov/portal/LinkClick.aspx?fileticket=4zFI7uw%2faKo%3d&tabid=2853



MINIMAL	LOW	MEDIUM	HIGH	CATASTROPHIC
Tornado	Ice Storm	Flood	CAT 3 - 4 Hurricane	LA Earthquake / New Orleans CAT 5 Hurricane
Influenza, food borne illnesses, endemic plague	Anthrax, plague with 1-2 cases	Pandemic Influenza	Smallpox	Bio-Engineered Agent
Traffic Accident	HAZMAT Spill	Aircraft Crash	Dam Break	Nuclear Plant Significant Incident

1.2 Disaster Categories

There are many types of disasters to contend with and we have categorized them as:

- NATURAL - Floods, Tornadoes, Hurricanes, Thunderstorms and Lightning, Winter Storms and Extreme Cold, Extreme Heat, Earthquakes, Volcanoes, Landslide and Debris Flows (Mudslide), Tsunamis, Wildfires

- INCIDENTS - Hazardous Materials Spill/Leak, Terrorism, Explosions, Aircraft Crashes, Chemical Emergencies, Nuclear Power Plant Incidents, Fires

- BIOLOGICAL – Flu and Food Poisoning Outbreaks, Pandemics, Bio-Engineered agent releases

2.0 Disaster Management

Disaster debris management is typically the largest part of government expenditures for disaster relief and recovery. The success of a debris management program is dependent upon the commitment by the agencies involved to planning, implementing, and evaluating their plan effectively and efficiently. Proper planning by management and effective employee training provides a foundation for a quick and successful recovery. See:
http://www.ohsep.louisiana.gov/recovery/debrismgtsampleplan.htm
The benefits of advance planning for disaster debris management include:

- Organized control of disaster debris management
- Reducing costs
- Increased speed and efficiency of clean-up
- Minimizing environmental and public health impacts
- Consistency with federal reimbursement requirements
- Increased public awareness of debris management issues

Several key themes run through this guidance:

- Making reduction, composting, recycling and diversion from landfills a priority
- Pre-approval of debris sites and local activation of pre-approved sites
- Proceeding in a manner that facilitates federal reimbursement
- More training in state and federal policies and procedures is need
- Increased buy-in and participation from the public

2.1 Debris Response Triggers

GOHSEP and FEMA use the results of the Preliminary Damage Assessment (PDA) to determine if the disaster situation is beyond the combined capabilities of the State and local resources and to verify the need for supplemental Federal assistance. Since all disasters do not necessarily require debris management, it is possible to apply Disaster Types with Disaster Intensity to trigger various levels of debris options. For example;

(NOTE: these are examples of how triggering might be applied and *may* not be used nor implied as being proposed for adoption by DEQ)

LOW INTENSITY

Trigger 1 - Impact 1 and local flooding or intense storms: Local debris site activation and vegetation debris reduction.

MEDIUM INTENSITY

Trigger 2 - Impact 2 and Cat. 1 Hurricanes or tornadoes: Consider construction and demolition (C&D) debris site collection
Trigger 3 - Impact 3 and Cat. 2-3 hurricanes: Consider air curtain destructors, and modification of C&D definitions for flooded areas.

HIGH INTENSITY

Trigger 4 - Impact 4: consider additional debris sites, grinding C&D and implementing asbestos handling guidance modifications.
Trigger 5 - Impact 5: consider amended residence demolition guidance; consider additional C&D guidance.

CATASTROPHIC

Trigger 6 - Impact 6: consider vegetative debris options, consider additional disposal options.

(NOTE: these are examples of how triggering might be applied and *may* not be used nor implied as being proposed for adoption by DEQ)

2.2 Federal Funding Compliance Requirements

Recipients of FEMA funding will require state agencies and local governments to accept roles and responsibilities for Environmental and Historic Preservation (EHP) Compliance. Compliance is essential for proper and timely reimbursement and enduring the inevitable audit. These laws and executive orders are aimed at protecting water, air, coastal, wildlife, land, agricultural, historical, and cultural resources, as well as minimizing potential adverse effects to children, low-income and minority populations.

FEMA funded activities that may trigger and EHP review:

- Debris Removal
- Emergency Protective Measures
- Repair to Pre-Disaster Condition
- Modification, Expansion, & Mitigation
- New Construction & Ground Disturbance

Detailed EHP information for state agencies and local government officials is provided at: http://www.crt.state.la.usjhpjSectionl06.aspx or http://www.fema.gov/plan/ehp/.

3.0 Recycling and Beneficial Use

This plan is designed to encompass LDEQ's goal of reduction, conservation, and management relative to debris management. The plan promotes reduction of the debris stream utilizing chipping, grinding, recycling, or other methodologies as directed in LA R.S. 30:2413.1. It promotes conservation and management by ensuring that adequate capacity exists for disposal and management of disaster-generated debris, including that generated by redevelopment and repopulation by businesses and residents. The plan also encompasses the legislative mandate as directed in LA R.S. 30:2413.1 to reduce debris 50% by volume and 50% by weight prior to disposal in a landfill.

Local governments or state agencies should identify sites where recycling and beneficial use options may be utilized. Local governments or state agencies should maintain standby contracts to provide for the oversight, implementation and operation of recycling and beneficial use projects associated with disaster-generated debris activities. The standby contracts should include provisions to ensure that marketing outlets are available to receive and process the material resulting from the recycling and beneficial use activities. The recycling and beneficial use options provided below and later in this document will contribute to the plan's goals. See 8.0 on Special Debris Management for more information.

Bricks and concrete removed from homes during the demolition process may be recycled utilizing stone crushing equipment (large scale-crushing operations may require additional conditions or permits). Equipment utilized for this purpose shall be operated in accordance with manufacturers' instructions and any applicable LDEQ correspondence, authorization or guidance. A copy of the manufacturers' instructions shall be maintained on site and made available to the regulatory agencies upon request.

4.0 Debris Management Definitions

4. 1 Construction and Demolition Debris

Non-hazardous waste generally considered not water-soluble, including but not limited to:

- Metal, concrete, brick, asphalt, roofing materials (shingles, sheet rock, plaster), or lumber from a construction, remodeling, repair, renovation, or demolition project
- The incidental mixture of construction and demolition debris with asbestos-contaminated waste. (i.e., incidental asbestos-contaminated debris that cannot be extracted from the demolition debris)

4.2 Vegetative Debris

Vegetative debris consists of whole trees, tree stumps, tree branches, tree trunks, and other leafy material. **It does not include processed wood or other lumber used in construction.**

4.3 Debris Management Site

A Debris Management Site is a location that has been identified by the local government or state agency and has been evaluated and approved by LDEQ for the purposes of staging, reduction, or final disposal of disaster-generated debris.

The activities conducted at these sites might include:

- Chipping and grinding and/or composting of vegetative debris
- Burning operations for vegetative debris only
- Construction and demolition debris staging or disposal
- Staging of vessels and vehicles, or
- Staging of special debris (munitions and ordnance, household hazardous materials, compressed gas tanks, electronic goods, white goods and tires)

Debris management sites **do not** include the staging or other processing of municipal solid waste or putrescible waste and may not be unless approved by the Department.

4.4 Curbside Segregation of Debris

Curbside separation or sorting of debris is the sorting of debris by the resident into piles of discrete waste streams being collected as the result of a disaster.

This is the most efficient and cost effective method of debris management. The segregated debris piles must be placed on the right-of-way and away from obstructions, such as,

mailboxes, fire hydrants, gas meters, and telephone poles. Waste streams typically needing curbside separation in a disaster recovery effort are vegetative debris, construction and demolition debris, electronics, household hazardous materials, other special wastes and regular garbage. This will vary according to the extent of the disaster and the capabilities and decisions of local governments. Local government and state agencies should develop specifically tailored collection strategies for unique situations, such as, narrow streets, dense population, and narrow right-of ways. Curbside segregation of debris should not be done by the collection crews. In no case are munitions and ordnance to be the subject of curbside segregation. See Section 8.8 for more information on munitions and ordnance.

4.5 De minimus contamination

De minimus contamination of the construction and demolition debris waste stream should be insignificant contamination of approximately 5% of the incoming load. In no case shall a single load exceed 10%.

4.6 Eligible debris

Debris removal is the clearance, removal, and/or disposal of items such as trees, sand, gravel, building components, wreckage, vehicles, and personal property. For debris removal to be eligible or reimbursement, the work must be necessary to: eliminate an immediate threat to lives, public health and safety; eliminate immediate threats of significant damage to improved public or private property; ensure the economic recovery of the affected community to the benefit of the community-at-large; and to mitigate the risk to life and property by removing substantially damaged structures and associated appurtenances as needed to convert property acquired through a FEMA hazard mitigation program to uses compatible with open space, recreation, or wetlands management practices. FEMA, not the Department, determines eligibility. (http://www.fema.gov/government/grant/pa/debris_main.shtm)

4.6.1 Types of eligible debris:

1. Vegetative
2. Construction & demolition
3. Hazardous waste
4. Household hazardous waste
5. E-waste
6. Soil, mud, and sand (FEMA evaluates on a case-by-case basis)
7. White goods
8. Vessels and vehicles
9. Putrescent (decaying garbage)
10. Compressed gas tanks
11. Tires
12. Munitions and ordnance

4.6.2 Types of ineligible debris

1. Debris from a previous disaster
2. Debris related to construction
3. Fallen trees in a forest
4. Stump removal, unless authorized by FEMA
5. Private property debris, unless authorized by FEMA
6. Debris on public golf courses or cemeteries
7. Regular municipal garbage collection

5.0 Debris Management Sites

The Plan is designed to provide guidance to local governments and state agencies in planning, mobilizing, operating, and deactivating disaster debris sites. It is important that agencies and local governments handling debris have their own Debris Management Plan that complies with this document and the debris management requirements of FEMA as published in FEMA's Debris Management Guide, FEMA-325. It is important that local Debris Management Plans identify key staff members and their responsibilities for managing and controlling debris clearing, removal, and ultimate disposition operations. Agencies and local governments will need to determine appropriate sites for the following temporary activities that may be required to respond to a disaster: staging and transfer of construction and demolition (C&D) debris; staging of vehicles and vessels; staging of household hazardous waste; chipping, grinding and/or burning of vegetative debris; composting of vegetative debris; handling of munitions and ordnances; staging of white goods, electronic goods and other consumer items; and recycling and beneficial use activities. Agencies and local governments should also consider the number and type of sites that may be required. Transportation access should also be a consideration factor.

The Department will pre-approve disaster debris sites. Sites that were approved by LDEQ for use in previous recent disasters (Katrina, Rita, Gustav, and Ike) are prime candidates for pre-approval. The designation of a location as an inactive "pre-approved" site will be subject to an annual renewal by June 1. Upon the declaration of a disaster by the Governor, local governments and state agencies may "activate" a pre-approved site for its intended purpose. Upon activation, a verbal notification will be provided to the LDEQ Regional Manager that the site is active. This verbal notification shall occur as soon as practicable depending on communication capability. A written follow up notification shall be made within 15 days of the activation date to the LDEQ Regional Manager. The LDEQ Regional Office staff will monitor the site and handle site "deactivation" requests once the site use is no longer needed. A site may be closed as a pre-approved site upon request of the property owner, the local government that requested designation or the Department. See Appendix C for a list of the LDEQ Regional Offices and their contact information

5.1 Finding the Right Location

When selecting a proposed debris management site, the local government should consider the following:

- Does the site have historical preservation approval? Pre-approval cannot be granted until this is completed. Previously approved sites should have received SHPO documentation.
- What is the proposed use for this site?
- Is it easily accessible by the types of vehicles transporting the debris?
- Is it removed from obstructions such as power lines and pipelines?
- Is the site considered a wetland area, as defined by the U.S. Army Corps of Engineers?
- Is the general site topography conducive to the activity that will be conducted there?
- Are there nearby occupied residences and/or businesses that will be inconvenienced or adversely affected by use of this site?

- Is the size sufficient for its intended use?
- Is the soil type suitable for its intended use?
- Is the site a previously authorized location that is being reactivated for use?
- Is the site located near water bodies such as rivers, lakes or streams and their proximity to occupied dwellings?
- What is its proximity to the impacted area?
- Ownership of site? If not government owned, the applicant needs to have secured access rights to the property.

5.2 Site Approval

In order for a location to be considered by the LDEQ as a debris management site, the agency or local government must submit an Emergency Debris Management Site Evaluation & Request Form to LDEQ. A copy of the form is attached as Appendix A and is available on LDEQ's website at http://www.deq.louisiana.gov/portal/tabid/259/Default.aspx Authorizations may be issued following a site inspection by LDEQ personnel for staging areas to be used for temporary storage and chipping, grinding or burning of disaster-generated vegetative debris. Sites that have been identified by an agency or local government, evaluated, and authorized by LDEQ for use in response to a previous hurricane disaster will be provided on LDEQ's website. If the site is approved, LDEQ will inform the local government and will document the approval, usually by letter. The letter will also contain any restrictions or operational conditions that must be adhered to relative to the site. Operational conditions will be outlined in an Interim Operational Plan provided with the site approval.

The Department my choose to provide verbal notice of approval upon receipt of the Emergency Debris Management Site Evaluation & Request Form, however, verbal approval will not be given for burning sites or temporary C&D disposal sites.

5.3 Site De-activation

Each temporary debris management site, with the exception of authorized vegetative debris sites where ash is land-applied, will eventually to the extent practicable, have disaster-related debris cleared and be restored to its previous condition and use. De-activation must be in accordance with approved LDEQ practices and/or the Interim Operational Plan contained in the department's site approval letter. Sampling of soil and/or ash that is left at the site may be required by the LDEQ. The agency or local governing authority will be required to take necessary steps to ensure that no environmental contamination is left on-site. De-activation should be accomplished within the time limits established by the LDEQ.

6.0 C&D Debris Management

LDEQ recognizes that decisions on the disposition of wastes and debris need to be made at the collection point. Use of best professional judgment will be necessary to determine the ultimate disposition of collected material. Contractors chosen by the local governing authority, or by state or federal agencies, should possess knowledge of applicable regulations, this plan, and any LDEQ Declarations of Emergency and Administrative Order in order to correctly manage, transport and route waste streams to appropriate sites and/or facilities

6.1 C&D Debris Staging/Transfer

In the event of a considerable amount of the disaster-generated C&D debris, staging may be necessary and debris shall be transported at a later date to be placed into LDEQ authorized C&D debris disposal sites. See Section 4.1 Construction and Demolition Debris definitions.

If approved, site operations will comply with the temporary staging area Interim Operational Plan provided with the site approval. It is the responsibility of the local government to provide this Interim Operational Plan to any entity that may be charged with operation of the site. See Appendix A for an example.

Arrangements should be made to segregate unsuitable materials such as household garbage, white goods, asbestos containing materials, and household hazardous waste. These materials should be placed in appropriate containers and transported to facilities that are approved for their receipt. If more than de minimus amounts of these wastes are present, the waste should be handled in a manner consistent with the most stringent management technique necessary for the waste stream. Louisiana has new LESHAP Guidance on Residential Demolitions. See:
http://www.deq.louisiana.gov/portal/tabid/2883/Default.aspx

6.2 C&D Debris Disposal

C&D debris shall be disposed in permitted C&D Debris Landfills. However, due to the devastation caused by a natural disaster, it may be necessary for LDEQ to approve staging and/or disposal of C&D debris at sites that are deemed appropriate but are not permitted.

In extreme circumstances, local governments may request establishment of temporary C&D disposal sites. Sufficient information must be provided to justify the request and that demonstrates the site will operate under efficient, expeditious and environmentally safe operations. At the time of the request, the local government must address how the closure of the site will be accomplished, who will manage the site closure and the party responsible for funding the site closure. If approved, site operations must comply with the Interim Operational Plan provided by LDEQ.

7.0 Vegetative Debris Management

Every effort shall be made to consolidate material from fallen trees and other vegetative debris in an attempt to beneficially use as much of this material as possible. For example, some local industries can utilize the wood material for fuel, and should be encouraged to do so. Material may be chipped or otherwise reduced in volume to allow for composting or other beneficial reuse. Site operations must conform to the requirements of R.S. 30:2413.1 in that "the total green and woody debris intended for final disposal in a landfill, fifty percent shall be reduced by weight and fifty percent by volume prior to transport to a landfill" (for disposal). The law states that "reuse and recycle material and to divert debris from disposal in landfills to the maximum extent practical, efficient, and expeditious in a manner that is protective of human health and the environment."

Vegetative debris may be transported to a landfill for reduction; however, it may not be placed directly into a cell for final disposal until reduced. Although the Department encourages as close to a 100% diversion of vegetative debris from final disposal into landfill cells, the statutory minimum requirement is the 50% reduction by weight and volume. Vegetative debris may be transported to a landfill, reduced by any lawful method, and placed in cells after reduction.

In order to effectively implement this policy and encourage recycling, the beneficial use of vegetative debris, and the efficient management of debris generated by Hurricane Gustav, LDEQ has required that all debris management sites submit a Weekly Debris Management Report. These weekly reports indicated the volume and weight of debris received, processed, recycled, and disposed in a landfill. The Department determined that the most equitable method for attaining the goal for all state agencies was to apply the statute statewide. Instances where the goal was not met by local state subdivision, either municipal or parish, will be examined by DEQ staff to determine why the goal was not met and what needs to be done to improve compliance on a case-by-case basis.

7.1 Coastal Restoration Projects

The Department of Natural Resources has stated, "The potential to use post-storm vegetative debris in coastal Louisiana for coastal restoration and protection purposes is very limited. Several demonstration projects have been attempted; however, the proved not to be economically and ecologically justifiable." See:
http://cms/portal/Portals/0/HurricaneGustav/Vegetative%20debris%20for%20coastal%20restoration.pdf

7.2 Vegetative Debris Staging and Processing Sites

Materials approved for receipt at vegetative debris staging and processing sites include vegetative debris such as yard waste, trees, limbs, stumps, and branches. Sites should be identified as staging/grinding/chipping/composting sites and/or burn sites. All debris sites must be operated in accordance with the LDEQ-provided Interim Operational Plan or other LDEQ correspondence or guidance. **It is the responsibility of a local government authority and/or a state agency to provide the LDEQ Plan, correspondence or guidance to any entity**

that may be charged with operation of the site. All equipment (grinders, chippers, air curtain burners) shall be operated in accordance with manufacturers' instructions and any applicable LDEQ authorization. A copy of the manufacturers' instructions shall be maintained on site and made available to the regulatory agencies upon request.

7.3 Vegetative Debris Staging

Some debris sites will only stage vegetative debris and shall not conduct any form of processing of the vegetative debris. These debris sites shall only store the vegetative debris until it is to be hauled to a processing site for reduction. Maintaining staging piles of vegetative debris with a height of less than 6 feet and base width of less than 10 feet provides greater surface area for dissipation of heat and volatile gases, thereby minimizing the risks of spontaneous combustion. Frequent monitoring is required. Staging sites must limit the temperature of staged piles of vegetative debris to 160 degrees or less in order to reduce the potential for spontaneous combustion by allowing accumulated heat and gases to escape. Sites only approved for staging must request and obtain written approval in order to chip, grind, compost or burn debris.

It is strongly recommended that local governments designate an approved emergency debris management site as a drop-off vegetative debris site where residents may bring vegetative debris for aggregation and/or processing. It is also suggested that portion of this site be setup to accept other residential materials, such as, electronics, appliances household hazardous materials, tires, and compressed gas cylinders. A separate container for residential garbage would be especially useful. Drop-off sites should be designed and managed with public safety as a priority.

7.3 Vegetative Debris Grinding/Chipping/Composting

Grinding and chipping provides material for use in landscape mulch, compost preparation, and industrial boiler fuel.

In preparing compost and/or mulch piles, care should be taken to reduce the potential for spontaneous combustion. Placing chipped or ground organic debris into piles can result in rapid microbial decomposition that generates heat and volatile gases. Temperatures in large piles containing readily degradable debris can rise to greater than 160^0 F, increasing the chance of spontaneous combustion.

Spontaneous combustion is more likely in large, dense piles of debris under dry, windy conditions. Maintaining windrows with a height of less than 6 feet and a base width of less than 10 feet provides greater surface area for dissipation of heat and volatile gases, thereby minimizing the risks of spontaneous combustion.

Turning piles when temperatures reach 160 degrees can also reduce the potential for spontaneous combustion by allowing accumulated heat and gases to escape. Turning piles when temperatures decline can restore microbial activity and composting temperatures. Optimal moisture should be maintained to reduce combustibility. As a rule, optimal moisture is obtained when squeezing a handful of material yields a drop or two of water.

Shredded leafy debris will decompose more rapidly and retain more heat than wood chips.

Sufficient wood chips or other bulky materials should be mixed with leafy material to ensure rapid diffusion of heat and gases during the early stages of decomposition. The ideal ratio of carbon (wood chips) to nitrogen (green materials) in a compost pile is about 30:1. A pile with that balance of materials will decompose steadily, and yield nutrient-rich compost.

Large piles or windrows should be located away from wooded areas, power lines, and structures. They should be accessible to fire fighting equipment, if a fire were to occur.

7.5 Vegetative Debris Burn Sites

Vegetative debris burn sites consist of open burning and burning via the use of a portable air curtain incinerator (air curtain destructor or pit burner). Proximity to roads and dwellings is of particular importance in the selection of sites for this activity.

LDEQ may approve open burning of vegetative debris on a case-by-case basis. As with all proposed debris management sites, **open burning locations must be approved by LDEQ in advance of their** use. Local governments may utilize open burning during the initial disaster response for a reasonable timeframe to allow for the reestablishment of critical arteries for transportation, emergency response, and governmental operations. Timeframes will be reflected by the magnitude of the disaster. In addition, where continued burning is necessary, any burning shall utilize equipment to efficiently combust waste and reduce emissions if LDEQ or local governing authority deems the use of equipment necessary to protect public health and the environment. Local, state, and federal partners associated with the vegetative debris burning operation will be advised of locations that have been approved for this purpose. All sites must be operated in accordance with the LDEQ-provided Interim Operational Plan or other LDEQ correspondence or guidance.

Portable air curtain incinerators should be operated in accordance with the manufacturers' instructions and with any applicable LDEQ permits or directives. *A copy of the manufacturers' instructions shall be maintained on site and made available* to *the regulatory agencies upon request.*

The Department has adopted regulations for portable air curtain incinerators. Large-scale air curtain operations may require additional conditions or permits. Operators should be familiar with:http://www.deq.louisiana.gov/portal/LinkClick.aspx?fileticket=Kbbg%2bq9hlqQ%3d&tabid=2853

Ash from Vegetative Debris Burn Sites may be land applied on site or off site. Off site application of ash will require specific, written prior approval by DEQ. Whenever possible, soil test data and analysis of the ash should be available to determine appropriate application rates. Ash should not be applied during periods of high winds. Ash should not be applied within 25 feet of surface waters or ditches or drains on vegetated sites. These distances should be doubled on sites that are not vegetated, and the ash should be promptly incorporated into the soil. As an approved alternative to land application, ash from combustion of clean vegetative debris may be utilized as a blending or stabilization component, chemical activator, replacement component in masonry products or a component of pozzolanic concrete. Ash that cannot be land applied or used in an alternative manner shall be disposed at a permitted solid waste landfill.

Assistance in obtaining soil test data and waste analysis of ash may be available through the LSU Cooperative Extension Service's Soil Testing Laboratory. http://www.stpal.lsu.edu/

7.6 Vegetative Debris Disposal

To the extent possible and practicable, vegetative debris that cannot be beneficially used will be disposed in permitted landfills. The total volume of green and woody debris intended for final disposal in a landfill shall be reduced fifty percent by volume and fifty percent by weight prior to final disposal. This chipped or ground vegetative debris may be used as compost, a component of daily cover (with permission), ground cover, erosion control material, or as fuel. Vegetative debris may not be disposed in a landfill as the first option, but may be used as a component of the cover system for a landfill or a means for providing erosion control.

7.7 Weekly Debris Management Reports

7.7.1 Submitting

In order for the Department to monitor the local government or state agency management of the vegetative debris waste stream and to ensure that the Legislative Mandate has been met *(vegetative debris shall be reduced fifty percent by volume and fifty percent by weight prior to final disposal into a landfill),* all vegetative debris sites processing vegetative debris (grinding, chipping, and burning sites) shall submit to the Department on a weekly basis, a Weekly Debris Management Report (WDMR) indicating how much vegetative debris is received, what method(s) of process is utilized (Le. chipping, grinding, beneficial reuse, and/or burning), how much vegetative debris is processed, and the final fate of the waste stream (Le. industrial boiler fuel, compost/mulch, a component of the cover system for a landfill, disposal in landfill, etc.). This report is required to be filled out by all active sites until all of the vegetative debris received has been finally processed. All WDMRs shall be submitted before the debris site can be closed or deactivated. (Copies are in Appendix A)

7.7.2 Signature

All WDMRs shall be signed by an authorized person duly authorized by the local government or state agency responsible for the debris site. "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7.7.3 Agency Responsibility

It is the local government or state agencies responsibility that all WDMRs are filled out and submitted to the Department in a timely manner.

7.7.4 De-activation

De-activation is applicable to pre-approved debris sites only. Once a de-activation assessment is conducted and all Weekly Debris Management Reports have been received and verified complete, a deactivation letter is signed by the Assistant Secretary indicating that the debris site is considered de-activated by the Department and shall not accept or process any additional debris. For information on site de-activation, see Section 5.3.

7.7.5 Closure

Closure is applicable to all temporary emergency debris management sites and those pre-approved sites being withdrawn as pre-approved sites. Once a closure assessment is conducted and all Weekly Debris Management Reports have been received and verified complete, a closure letter is signed by the Assistant Secretary indicating that the debris site is considered closed by the Department and shall not accept or process any additional debris. For information on site closure, see Section 5.0

7.8 Marsh Debris Management

7.8.1 Marsh Grass

Freshwater marsh grass debris can be an effective additive to composting vegetative debris. As marsh grass is almost completely water, it provides a natural moistening agent to composting, and at the same time, accelerating the natural process of decomposition.

According to Bill Carney, Ph.D., Coordinator of the LSU Ag Center, Research and Extension, WA Callegari Center Environmental Center, utilization of this freshwater marsh grass in the composting process in a 3:1 ratio of marsh grass (carbon source) to a nitrogen source (manure, green grass) will result in the most effective management of this debris which is extremely difficult to burn. Increased salt content due to storm surge may affect its final use as a soil amendment after composting. There exist field test meters that can be used to determine salinity levels.

7.8.2 Retrievable Debris

Retrievable debris items that are in the wetland marsh area shall be retrieved in accordance with ESF-10 protocol [1] and transported to an authorized debris management area. Those items will then be either recycled and/or disposed in accordance with this Plan

Retrievable debris items (e.g., vessels, containers, orphan drums, compressed gas cylinders, vessels, vegetative/woody matter, white goods, etc.) that are not in a marsh but are located in or near land or a water-body adjacent to a wetland marsh area shall be retrieved for transport to an authorized debris management site. Those items will then be either recycled and/or disposed in accordance with this Plan.

Retrievable debris items should, if possible, be retrieved during the initial recovery operation, managed, and transported to facilities that are approved for their receipt and management. These debris recovery and removal activities are not expected to result in appreciable habitat disturbance.

1 ESF -10 - Emergency Support Function # 10 describes the lead coordination roles, the division and specification of responsibilities among federal agencies, and the national, regional, and onsite response organizations, personnel, and resources that may be used to support response actions. ESF #10 is applicable to all federal departments and agencies with responsibilities and assets to support state, local, and tribal response to actual or potential oil or hazardous materials incidents.

7.8.3 Irretrievable Debris

Irretrievable debris items that are located in the marsh, especially sensitive marsh areas, shall be managed in accordance with ESF-10 protocol. These debris management activities are expected to result in appreciable habitat disturbance and therefore, would require an expedited or emergency trustee consultation.

7.8.4 Marsh Burning

Care needs to be taken with marsh burning during disaster recovery operations. Due to the immense amounts of vegetative debris generated in most disasters, these fires can easily expand beyond anticipated burn areas. Marsh burning near active debris sites can pose risk to the site and site personnel. Burning is a practice utilized in marsh areas, especially in areas designated as a refuge. Refuge areas utilize marsh fires on a 2 to 3 year rotational schedule to manage the accumulation of marsh grass and other vegetative/woody debris. The refuges and other entities (i.e. private, parish, state, or federal) owning marsh areas that are non-oil contaminated areas may utilize this method to address the accumulations of marshy grass and debris generated because of a natural disaster. The utilization of a marsh fire to address the disaster-generated debris must be communicated to and coordinated with local, state and federal entities participating in the disaster response and management activities (i.e., parish government, property owners, Department of Natural Resources, Department of Wildlife and Fisheries, Department of Environmental Quality, Environmental Protection Agency, United States Coast Guard, United States Army Corps of Engineers, Parish/Local Fire Department). The plans and procedures pertaining to marsh burning are to be evaluated and authorized by all entities involved in the effort. The plan must take into consideration the potential presence of hazardous, flammable, ignitable, or reactive materials that could influence the marsh burning operation. This is needed so that the proper environmental and personal safety precautions will be set forth in the marsh burning plans and procedures.

7.8.5 Transportation in the Marsh

The specific methods of maneuvering transport vehicles (i.e. marsh buggies, pontoons, etc.) in the various areas of the marsh for the purposes of debris management and retrieval activities will need the concurrence of the Department of Natural Resources (Coastal Management), the Louisiana Department of Wildlife and Fisheries and other pertinent state level agencies. This coordination is also needed to address potential navigation hazards or obstructions posed by the presence of disaster-generated debris in the marsh areas.

8.0 Special Debris Management

8.1 Household Hazardous Materials (HHM)

Hazardous waste is waste that can catch fire, react, explode, is corrosive or toxic. Most HHM produced by residential consumers is in small quantities, so those wastes have been exempted from regulation as a hazardous waste by EPA and the State of Louisiana. To be defined as "household" waste and thus considered exempt from federal/state hazardous waste regulations, the waste must be generated by individuals on the premises of a residence for individuals (a household) *and* composed primarily of materials found in the wastes generated from homes. Wastes generated by commercial or industrial establishments that appear to be the same as household waste are not exempt from state/federal hazardous waste regulations.

The Department strongly recommends that sponsors of HHM collection programs manage the collected waste as a Subtitle C hazardous waste, that is, it shall be managed at a facility or site following the hazardous waste guidelines. Given the effort and expense put into a HHM collection program, it makes sense to ensure the greater level of personal safety and environmental protection that will result from the more stringent controls. Precautions must be taken at these sites to prevent the release of materials into the environment. Such precautions include, providing lined temporary storage areas for accumulation of the material, segregation of the various streams, using trained personnel, obtaining spill kits and providing personal protective equipment.

HHM staged at a permitted solid waste facility or approved Emergency Debris Management Site for scrapping/recycling shall be staged away from other solid wastes by category, appliances, electronics, compressed gas cylinders, *etc.*

8.2 Appliances

Local governments should set up citizen drop-off collection sites for large appliances (white goods) in the event that a large amount of such material is anticipated. It is recommended that local governments contract with a metals/or scrap appliance dealer to come and collect white goods for recycling, as white goods may not be landfilled. Mercury switches and refrigerant must be removed from appliances by the contractor. Mercury containing devices are easily handled. More detailed information on mercury devices in appliances is available from LDEQ's web site at: http://www.deq.louisiana.gov/portal/tabid/287/Default.aspx.

8.3 Small Engines

Small engines may be sent to a scrap metal processor. Efforts should be made to be made to remove oil, fuel, and any other fluids.

8.4 Electronic Goods

In order to contribute to increased recycling and to reduce the volume of waste disposed in landfills, electronic waste (electronic goods or e-goods) should be recovered. It is recommended that local governments contract with an electronics recycler or use the state recycling contractor to come and collect electronics for recycling and dismantling. A state contract is available for state agencies and

local government agencies to utilize for the collection of electronics.

Cathode Ray Tubes (CRTs) shall be sent for reuse and/or recycled. See the LDEQ regulations at LAC 33:V:4911, 4913, and 4915. (Conditional Exclusion for Used, Broken Cathode Ray Tubes Undergoing Recycling, Conditional Exclusion for Used, Intact Cathode Ray Tubes (CRTs) Exported for Recycling, Notification and Recordkeeping for Used, Intact Cathode Ray Tubes (CRTs) Exported for Reuse).

8.5 Compressed Gas Cylinders

Compressed gases present a unique hazard. Depending on the particular gas, there is a potential for simultaneous exposure to both mechanical and chemical hazards. Gases may be: flammable or combustible; explosive; corrosive; poisonous; inert; or, a combination of hazards If the gas is flammable, flash points lower than room temperature compounded by high rates of diffusion present a danger of fire or explosion. Additional hazards of reactivity and toxicity of the gas, as well as asphyxiation, can be caused by high concentrations of even "harmless" gases such as nitrogen. Since the gases are contained in heavy, highly pressurized metal containers, the large amount of potential energy resulting from compression of the gas makes the cylinder a potential rocket or fragmentation bomb.

Propane is a flammable gas that is generically referred to as LP-Gas or, LPG. It is recommended that local governments contract with a local LPG dealer to handle the inspection, pickup, recycling and redistribution of functional LPG and other flammable gas containers.

There should be no deliberate release of any compressed gas container, including oxygen and nitrogen tanks, by personnel as a part of the debris collection efforts. De-pressurized gas containers may still contain explosive gas mixtures. A close working relationship should be established with scrap metal processing facilities dealing with containers destined for scrap metal reclamation.

8.6 Fluorescent lamps

Fluorescent lamps are a Universal Waste and may be recycled using the state contract for fluorescent lamps. See: https://ecat.doa.louisiana.gov/ecat/external/externalContractDetail.sdo?docId=407696

8.7 Pesticides

Residentially generated pesticides should be handled as household hazardous waste. Contact the Department of Agriculture and Forestry, Waste Pesticide Program at (225) 925-6914 for pesticide questions or problems.

8.8 Munitions and Ordnance

Munitions or ordnance associated with the aftermath of a disaster that remain unexploded by either malfunction, design, or any other cause, should be handled by a law enforcement trained technician in chemical or conventional munitions or explosives handling, transportation, render-safe procedures, or destruction techniques.

8.9 Tires

Tires collected through hurricane debris collection activities and deposited at parish collection centers will be ineligible for payment of the Waste Tire Management Fund (WTMF) subsidy and are to be treated as debris under FEMA funded debris removal programs. Eligibility of tires for the subsidy shall be governed by the most current version of DEQ's Amended Declaration of Emergency and Administrative Order. For more help please contact DEQ Financial Services at (225) 219-3863 or Fax at (225) 219-3868.

8.10 Used Oil

Used motor oil, transmission fluid, and generator oils may be recycled by contacting a registered used oil transporter.

8.11 Latex Paint

Latex paint, if not recycled, may be hardened by adding an absorbent, such as cat litter or a commercial hardener and then sent to a municipal landfill.

8.12 Other Hazardous Wastes

Hazardous wastes, such as old gasoline, oil based paints, chemicals and solvents should be handled using a qualified hazardous waste contractor who is sending the materials to a permitted hazardous waste facility or reclaimer.

8.13 Treated Wood

Creosote treated telephone poles, chromated copper arsenate (CCA) or chromium trioxide wood, poles, railroad crossties, or treated wood chips must be disposed in a Type I (Industrial) Solid Waste Facility. Do not burn or use creosote and pressure treated wood as chips, sawdust, mulch, or compost.

8.14 Recordkeeping

Processors should keep a record of the amount of materials recovered and transported for recycling. Some products already require record keeping, e.g. used oil, and duplicate record keeping is not required, but a week summary report by category is expected.

9.0 Final Disposal Options

This Plan is designed to ensure that disaster-generated debris that requires disposal is managed and disposed in a manner that is protective of public health and the environment. Disaster-generated debris requiring disposal shall be managed and disposed at sites that have either been permitted or authorized by the LDEQ.

Disaster-generated debris contaminated with oil (e.g., crude oil, petroleum refined product) shall be disposed in a Type I, Industrial Solid Waste Landfill, except that oil contaminated marsh grass may be approved by the Department with local governments approval for burning on a case by case basis. Disaster-generated debris that is visibly covered with oil is considered oil-contaminated debris.

Putrescible waste (e.g., rotting food that has been removed unsalvageable refrigerators and freezers) shall be disposed in a Type II landfill.

The disposal of excessive accumulations of small animal carcasses shall be in accordance with the Louisiana Department of Health and Hospitals sanitary code. The disposal of large animal carcasses (e.g., horses, cows) shall be in accordance with the instructions from the Louisiana Department of Agriculture.

Hazardous waste generated because of the disaster event must be separated from other disaster-generated waste and disposed at a permitted commercial hazardous waste disposal facility. Recyclables and hazardous waste must be segregated for beneficial environmental use prior to transport to a landfill. While household wastes are classified as solid wastes that are not hazardous wastes, it is imperative that the household waste collected during this event be managed not only in an environmentally sound manner but also in accordance with the appropriate LDEQ rules and regulations governing the storage and processing of this type of waste.

Asbestos-laden debris from unabated buildings posed a personal and environmental hazard and must be handled according federal and state regulations. See: http://www.deq.louisiana.gov/portal/tabid/2883/Default.aspx.

10.0 Formosan Termite Control

Landfills are an ideal environment for these subterranean termites, especially in humid Louisiana. For this reason, restrictions are in place from the Louisiana Department of Agriculture and Forestry designating where in Louisiana potential Formosan termite contaminated debris might be disposed. Landfill operators, contractors, and waste generators should consult with the Department of Agriculture and Forestry regarding proper disposal of Formosan termite debris. Contact Mr. Bobby Simoneaux at (225) 925-3763 or bobby_s@ldaf.state.la.us